

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 10321-1 to 3 (1982): 50-kg Tent [TXD 20: Made-up Textiles]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



: 10321 (Parts I to III) - 1982

REAFFIRMED

2010

Indian Standard “पुनर्पुष्ट १६६३”

SPECIFICATION FOR
50-kg TENT

“पुनर्पुष्ट
“RE-AFFIRMED

UDC 685.531



© Copyright 1983

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 7

May 1983

IS : 10321 (Parts I to III) - 1982

Indian Standard

SPECIFICATION FOR

50-kg TENT

Made-up Textile Items Sectional Committee, TDC 44

Chairman
SHRI M. S. SAXENA

Representing
Ministry of Defence (ADGOF), Kanpur

Members
SHRI A. S. POPLI (*Alternate to*
Shri M. S. SAXENA)
SHRI A. T. BASAK Directorate General of Supplies & Disposals, New
Delhi
SHRI B. B. CHOWDHRY (*Alternate*)
SHRI K. S. GANESH BABU Ministry of Defence (ADGOF)
SHRI NIRANJANLAL DALMIA M/s Niranjanlal Dalmia, Bombay
SHRI S. G. GOKUL Polyvynide Products Company, Bangalore
SHRI S. M. JAIN Mansukh & Co (Overseas), Delhi
SHRI H. R. BHANSALI (*Alternate*)
JOINT DIRECTOR OF STANDARDS Research, Designs & Standards Organization,
Lucknow
DEPUTY DIRECTOR OF
STANDARDS (*Alternate*)
LT-COL B. PARGHI Ministry of Defence (DGI)
MAJ R. M. SINGH (*Alternate*)
SHRI MOHAN LAL SARAF M/s Prahlad Rai Dalmia, Kanpur
SHRI A. SUBRAMANIAM Madura Coats Ltd, Madurai
SHRI A. CHELLARAJ (*Alternate*)
LT-COL UJAGAR SINGH Ministry of Defence [Army Headquarters
(OS — P. III)]
CAPT S. C. VERMA (*Alternate*)
SHRI K. THIAGARAJAN Jaya Shree Textiles & Industries, Rishra
SHRI A. K. DALMIA (*Alternate*)
SHRI S. M. CHAKRABORTY, Director General, ISI (*Ex-officio Member*)
Director (Tex)

Secretary
SHRI S. BANERJI
Deputy Director (Tex), ISI

(Continued on page 2)

© Copyright 1983

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

IS : 10321 (Parts I to III) - 1982

(Continued from page 1)

Tentage Subcommittee, TDC 44 : 1

<i>Convener</i>	<i>Representing</i>
SHRI M. S. SAXENA	Ministry of Defence (ADGOF), Kanpur
<i>Members</i>	
SHRI A. T. BASAK	Directorate General of Supplies & Disposals, New Delhi
SHRI B. RUDEA (<i>Alternate</i>)	
SHRI V. C. BHATIA	The Gwalior Leather Factory Marar, Gwalior
SHRI G. N. CHATTERJI	Ministry of Defence (R&D)
SHRI A. C. MATHUR (<i>Alternate</i>)	
SHRI SHYAM SUNDER CHOUDHARY	Bharat Udyog, Delhi
SHRI NIRANJANLAL DALMIA	M/s Niranjanlal Dalmia, Bombay
SHRI S. M. JAIN	Mansukh & Co (Overseas), Delhi
SHRI H. R. BHANSALI (<i>Alternate</i>)	
SHRI S. N. MUKHERJEE	A. N. Mukherjee Pvt Ltd, Calcutta
SHRI A. S. POPLI	Ministry of Defence (ADGOF) (Ordnance Clothing Factory, Shahjahanpur)
SHRI MOHAN LAL SARAF	M/s Prahlad Rai Dalmia, Kanpur
SHRI H. S. SETHI	Lal Singh Sethi & Sons, New Delhi
MAJ R. M. SINGH	Ministry of Defence (DGI)
SHRI K. R. GARG (<i>Alternate</i>)	
SHRI D. R. SINGHVI	Marwar Tent Factory, Jodhpur
SHRI A. SUBRAMANIAM	Madura Coats Ltd, Madurai

**AMENDMENT NO. 1 AUGUST 1992
TO
IS 10321 (Part 1) : 1982 SPECIFICATION FOR 50 -kg
TENT**

PART 1 GENERAL

[*Page 5, clause 2.1 (g)*] — Substitute 'Two standing poles and one ridge pole'
for 'one ridge pole'.

(TXD 20)

Reprography Unit, BIS, New Delhi, India

Indian Standard
SPECIFICATION FOR
50-kg TENT

0. FOREWORD

0.1 This Indian Standard (Parts I to III) was adopted by the Indian Standards Institution on 9 August 1982, after the draft finalized by the Made-up Textile Items Sectional Committee had been approved by the Textile Division Council.

0.2 A 50-kg tent means that the gross mass of the complete assembly of this tent inclusive of all its components and accessories is 50 kg. Such nomenclature is given to a tent towards aiding in estimation of freight charges and its load allocation in carriages.

0.3 Parts I, II and III are based on IND/TC/2207, and IND/TC2207 (f) 'Specification for tent 50 kg', issued by the Chief Inspectorate of Textiles & Clothing, Ministry of Defence, Government of India. Indents are often made separately for inner and outer flies in addition to those for complete tents. Part I gives general requirements, manufacturing details, pitching plan, etc, while Part II and Part III cover the requirements of 'Outer fly' and 'Inner fly' respectively.

0.4 Standards of Weights and Measures Act, 1976 stipulate the use of International System of Units in the country; in order to familiarize the industry with this system, the recommended SI units for use in the textile industry are given in Appendix A (Part III).

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (revised).

Indian Standard
SPECIFICATION FOR
50-kg TENT

PART I GENERAL

1. SCOPE

1.1 This standard (Part I) lists various components and accessories for 50-kg tent and covers manufacturing details, pitching plan, sampling, inspection, etc.

2. COMPONENTS AND ACCESSORIES

2.1 The complete unit of 50-kg tent shall consist of the following:

- a) One outer fly,
- b) One inner fly,
- c) One small tent salitah,
- d) One tent bag for poles and pins,
- e) One weather screen (optional),
- f) One rope with toggles,
- g) One ridge pole,
- h) One medium tent mallet,
- k) Fourteen tent pins (wood medium), and
- m) Twelve 15-cm iron pins.

3. MATERIALS

3.1 The materials and components used in the manufacture of 50-kg tents shall conform to the requirements given in Table 1 of IS : 7609-1975*. Mosquito netting used shall conform either to IS : 1143-1973† or IS : 1431-1973‡ depending on type of netting used.

NOTE — In case these materials and components do not bear ISI Certification Mark, the quantity of samples to be drawn for testing are given in Appendix A (Part I).

*General requirements for tents.

†Specification for cotton mosquito netting, square mesh (*first revision*).

‡Specification for cotton mosquito netting, round mesh (*first revision*).

IS : 10321 (Part I) - 1982

4. MANUFACTURING DETAILS

4.1 In general the components of 50-kg tent shall conform to IS : 7609-1975* in respect of workmanship and finish. The specific manufacturing details are given in Appendix B (Part I). (see also Fig. 1).

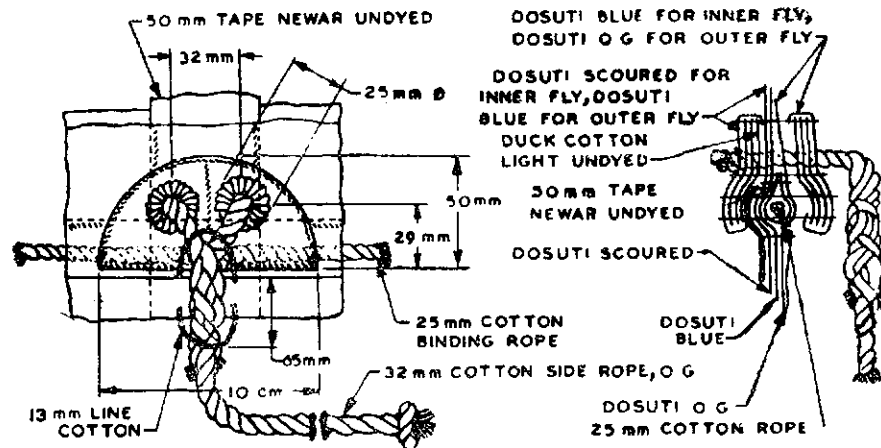


FIG. 1 DETAILS OF SIDE TAB FOR OUTER AND INNER FLY

5. DIMENSIONS

5.1 When pitched to the pitching plan given in Fig. 2:

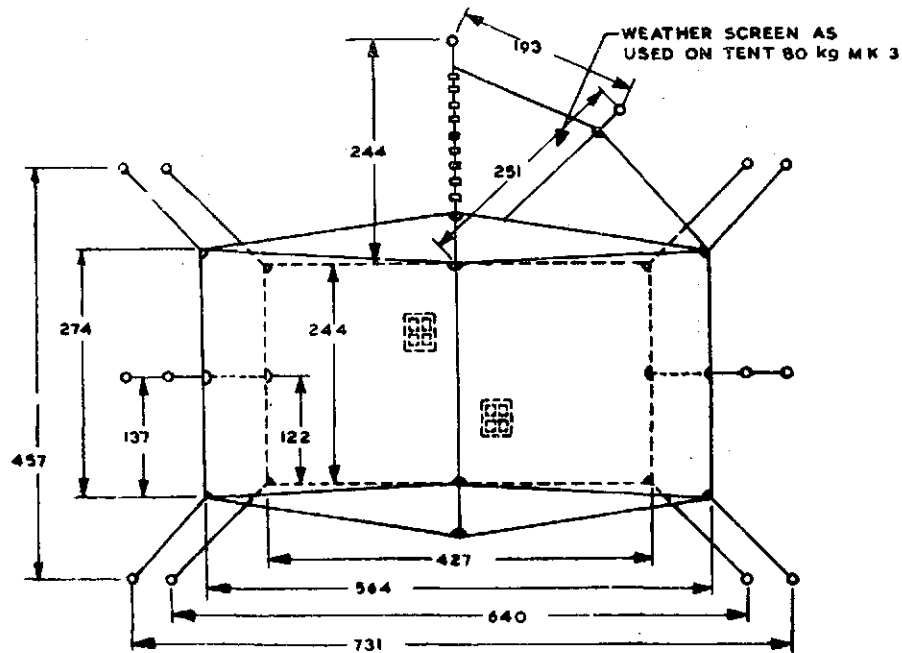
- a) the outer fly shall measure 244 cm along the ridge in length, 274 cm in length at bottom and 564 cm in breadth;
- b) inner fly shall measure 244 cm in length along ridge and bottom and 427 cm in breadth;
- c) the pitching space of the outer fly and the inner fly between the pins shall be 731 × 457 cm in case of outer fly and 640 × 457 cm in case of inner fly; and
- d) the floor space enclosed by the walls and the curtain shall be 427 × 244 cm.

5.2 The principal dimensions of the inner and the outer fly when pitched are given in Fig. 3.

*General requirements for tents.

6. SAMPLING

6.1 The inspection may be carried out conforming to any sampling plan ensuring an acceptance quality level (AQL) of not more than 4 percent. For selection of suitable single, double or multiple sampling plan IS : 2500 (Part I)-1973* may be referred.



All dimensions in millimetres.

FIG. 2 PITCHING PLAN

*Sampling inspection tables: Part I Inspection by attributes and by count of defects (first revision).

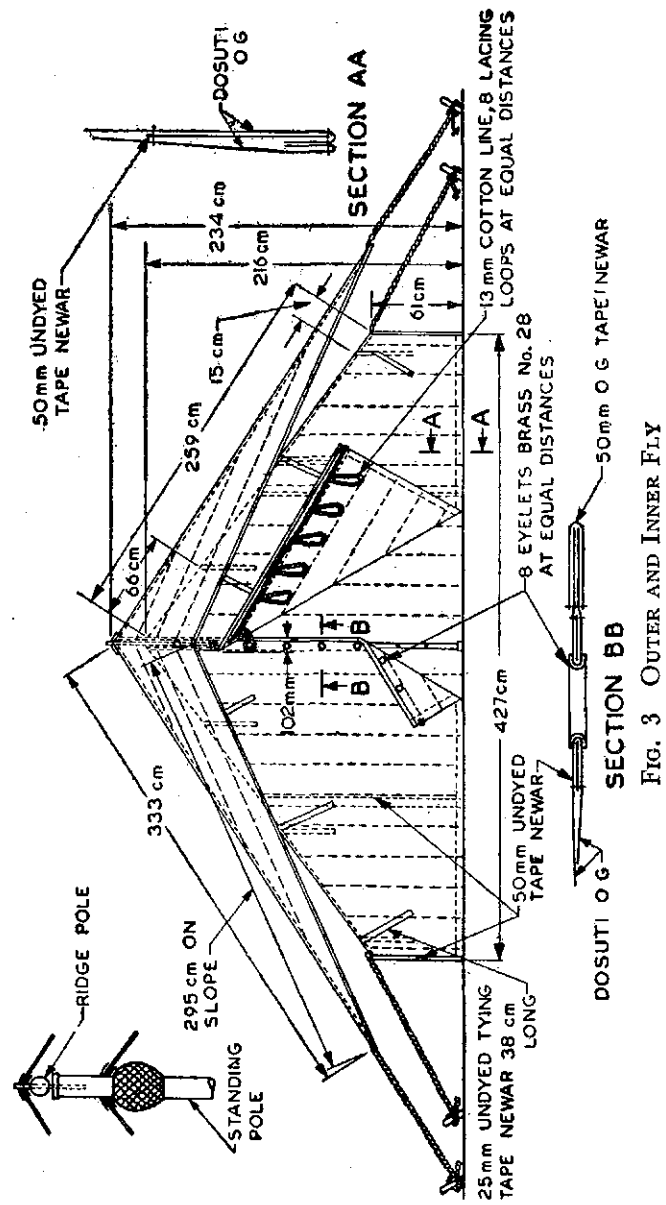


FIG. 3 OUTER AND INNER FLY

APPENDIX A

(Clause 3.1)

QUANTITY OF SAMPLES TO BE DRAWN FOR TESTING

<i>Sl No.</i>	<i>Material</i>	<i>Quantity to be Drawn</i>
(1)	(2)	(3)
i)	<i>DOSUTI</i>	3 m
ii)	Canvas, cotton	1 m
iii)	Mosquito netting	1 m
iv)	Tapes, ropes and lines	8 m
v)	Sewing threads	200 m
vi)	Eyelets, body and washer	12
vii)	Dees mild steel wire, 22 × 19 mm	6

NOTE — Full width samples of *DOSUTI*, canvas and netting may be drawn.**APPENDIX B**

(Clause 4.1)

SPECIFIC MANUFACTURING DETAILS**B-1. CLOTH**

B-1.1 The *DOSUTI* used in the manufacture of outer fly, inner fly, walls, etc, shall be 91 cm in width and in complete lengths except when narrow widths and cross seams are allowed as indicated below:

- a) *Narrow Width* — Two narrow width panels may be used in the outer fly of 50-kg tent, one in the outer fold and the other in the inner fold. The finished width of the narrow panels in the outer fly when measured at the cave shall not be less than 25 cm. One narrow width panel may be allowed in each fold of all walls provided the narrow width panels are staggered and no panel is less than 10 cm in width.

IS : 10321 (Part I) - 1982

- b) *Cross Seams* — Two cross seams are allowed (in maximum 10 percent of the quantity ordered) in the roof of the flies width 2 folds, one cross seam in the inner fold and one in the outer fold, provided the seams are not in the same section and a folded seam is used. A cross seam may be allowed in blue *DOSUTI* along the top of the wall of the inner fly.

B-2. SEWINGS

B-2.1 Outer fly, inner fly, walls, etc, may be sewn by hand (except the joining of the panels which shall be machine stitched) or machine stitched throughout. In the latter case, sewing cotton 36s/6 (165 dtex \times 6) shall be used in lieu of 12s/4 (500 dtex \times 4) (tailor sewing) and sewing cotton 10s/3 (600 dtex \times 3) in lieu of 6 mm line cotton (*MOCHI* sewing).

B-2.2 The hand sewing shall be employed for sewing strengthening tapes, cases of files, etc. The average number of stitches per decimetre shall be (5 *Min*) in case back stitch using a double thread is employed. If the back stitch is not employed, an average of 8 stitches/dm (7 *Min*) with double thread shall be used. An average of 8 stitches/dm are required for quilting the folds of *DOSUTI* using a single thread, for keeping all the folds intact.

NOTE — The number of stitches shall be calculated counting the number of stitches on one side of the fabric only, over a distance of 2 m where this is possible.

B-2.3 The machine stitching shall be employed for joining panels of outer fly, inner fly and walls. Cotton sewing thread 36s/6 (165 dtex \times 6) shall be used with minimum 28 stitches/dm.

B-2.4 The button hole stitching shall be done with 6 mm cotton line. A minimum of 14 stitches per button-hole of 13 mm diameter shall be provided. The button hole stitches shall be increased proportionately for the larger diameter of punched holes.

B-3. CAPS, TABS AND GUIDE LOOPS

B-3.1 These shall be made up of three folds of duck/canvas in 340-540 g/m² range and two folds of duck/canvas of mass heavier than 540 g/m². These shall be well covered on the exposed side with *DOSUTI* of the same shade as that part of the tent to which they are attached. The unexposed side may, however, be covered with *DOSUTI* in any colour. The length of *MOCHI* stitches for securing caps, tabs and guide loops shall not be more than 25 mm.

B-3.2 The holes in the corner and side tabs shall be punched out first to a size less than that of the rope to be used. The holes shall then be carefully button-hole-stitched with 6 mm cotton line.

Indian Standard
SPECIFICATION FOR
50-kg TENT

PART II OUTER FLY

1. SCOPE

1.1 This standard (Part II) covers the requirements of outer fly for 50-kg tent.

2. GENERAL REQUIREMENTS

2.1 In respect of general requirements the outer fly shall conform to IS : 7609-1975* as well as Part I† of this standard.

3. SPECIFIC REQUIREMENTS

3.1 The specific requirements including dimensions of outer fly are given in Fig. 1.

3.2 The manufacturing details of outer fly are given below in 3.2.1 to 3.2.7 (see also Fig. 2 and 3).

3.2.1 Construction — The outer fly shall consist of 2 quilted folds of *DOSUTI* 91 cm wide the outer fold being olive green (OG) and the inner blue. The outer fly shall have 2 hoods, one at each end. A guy rope shall run along the centre to centre of each hood between 2 pieces of 50 mm cotton tape *NEWAR* forming a loop between the caps.

3.2.2 Lines for Securing Weather Screen — A length of 13 mm line cotton shall be stitched at intervals of 7.5 cm on the under edge of the roof at both ends of the fly with 6 mm line cotton. The 13 mm line shall pass over the cap on the underside of the fly. All loose ends of the lines shall be securely knotted and all knots tightly drawn up and neatly finished. The lines shall be securely whipped for a minimum distance of 2.5 cm and stitched through with 3 stitches to prevent unrevelling.

3.2.3 Ridge — A strip of 75 mm tape *NEWAR* shall be inserted between the two folds of *DOSUTI* connecting the ridge caps. The edges of the tape and the centre shall be well quilted to the folds of *DOSUTI* and the tape shall extend well beneath the ridge caps.

*General requirements for tents.

†Specification for 50-kg tent : Part I General.

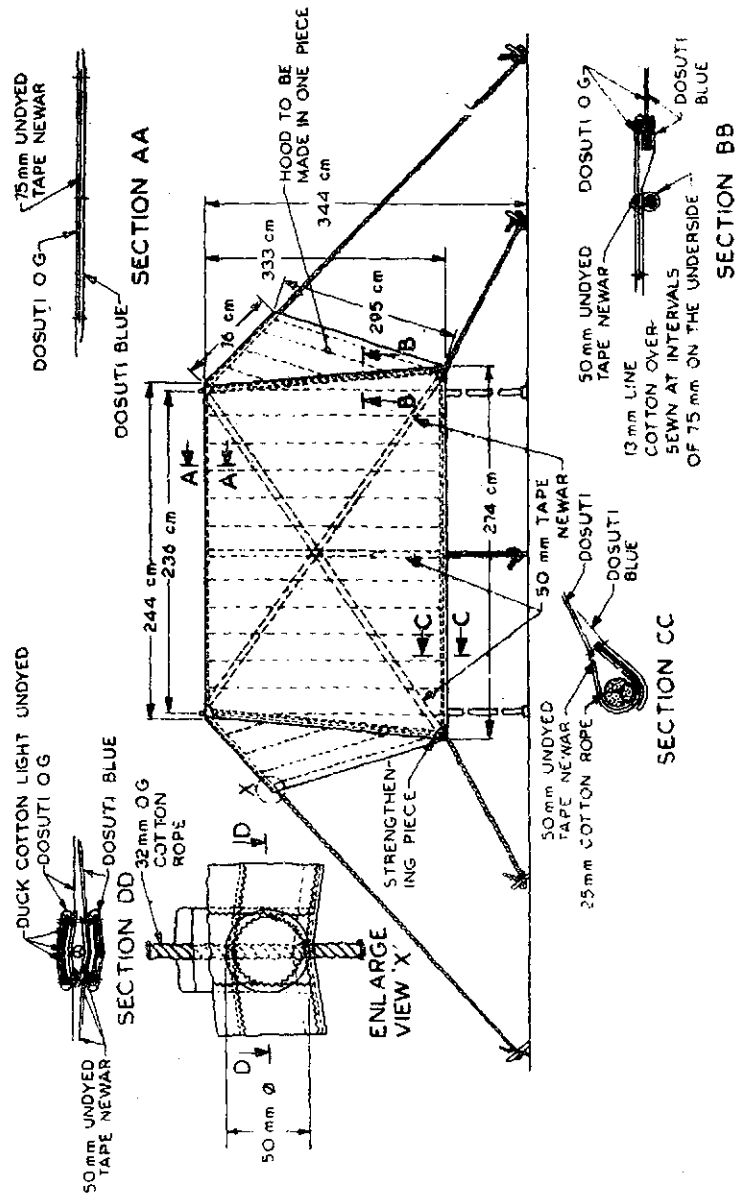


FIG. 1 OUTER FLY

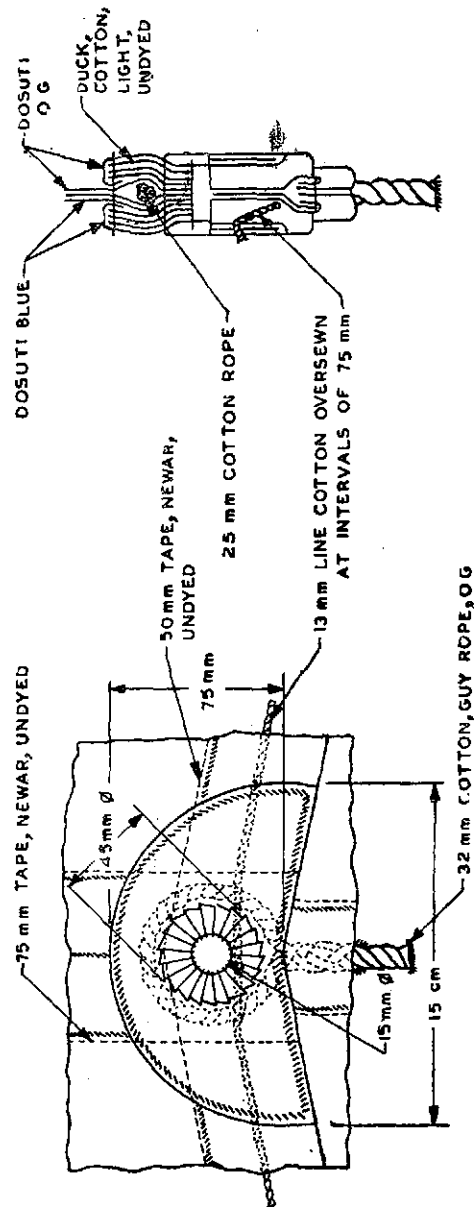


FIG. 2 DETAILS OF END CAP FOR OUTER FLY

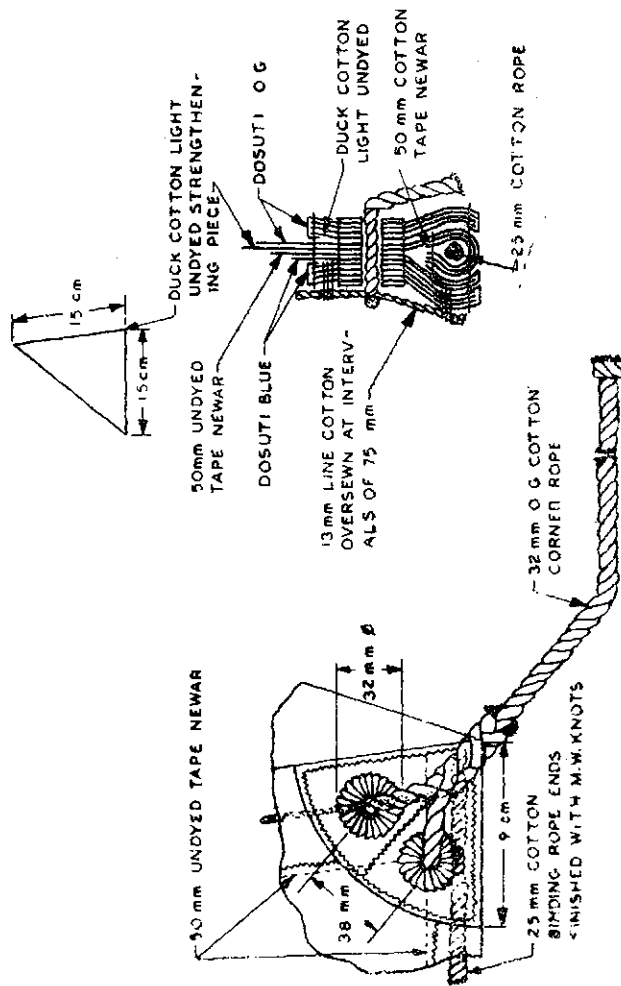


FIG. 3 DETAILS OF CORNER TAB FOR OUTER FLY

IS : 10321 (Part II) - 1982

3.2.4 Strengthening Tapes — Three strips of 50 mm tape, each strip of one piece throughout, shall be laid perfectly straight and evenly between the folds running from the binding rope situated at the cave straight over the ridge to the corresponding tab at the binding rope on the opposite side. A strip of 50 mm tape shall be laid flat and sewn between the folds along the edge of each hood. Two additional 50 mm wide cross tapes shall be laid between the folds, running from the corner tabs to the caps on each half portion of the roof. Both edges of each tape shall be quilted to the folds of *DOSUTI* to retain it in position.

3.2.5 Beading — A 25 mm cotton rope, wrapped in 50 mm tape, shall be sewn between the folds of *DOSUTI* along both the bottom edges of the outer fly. The ends of each rope shall be finished off with a 'Mathew Walker' knot, which shall be covered by the corner tabs secured with 6 mm line cotton.

3.2.6 Strengthening Pieces — The corners of the fly shall be strengthened by a triangular piece 15 × 15 cm of duck/canvas cotton undyed. Each piece shall be laid and sewn at its edges between the folds of *DOSUTI* at the corner. The undyed 6 mm line cotton, which secures the corner tab, shall be passed through the strengthening piece.

3.2.7 Ropes

3.2.7.1 There shall be 2 guy ropes 4 corner ropes and 2 side ropes of 32 mm cotton cordage OG rotproofed. The length of each guy rope shall be 457 cm and that of the corner and side ropes 183 cm.

3.2.7.2 Each guy rope shall be spliced securely at one end to form a loop and laid round the spike hole. The rope shall then be laid between two pieces of 50 mm tapes, and both folds of *DOSUTI* the hoods, one at each end of the fly. The corner and side ropes shall be securely spliced into the corner and side tabs.

3.2.7.3 All loose ends of the guy, corner and side ropes shall be securely finished off with a 'Mathew Walker' knot. All knots shall be tightly drawn up and neatly finished.

3.2.7.4 A circular tab 5 cm in diameter shall be fitted to the peak of each hood. The *MOCHI* stitching, which secures the tab, shall pass through the strands of the guy rope to ensure that the hood is retained in position.

4. MARKING

4.1 Each outer fly shall be legibly marked in indelible ink on the inside, in 25 mm letters, with the manufacturer's name/trade-mark, year of manufacture, for 50-kg tent and other such information as desired by the purchaser.

IS : 10321 (Part II) - 1982

4.1.1 Each outer fly may be marked with the ISI Certification Mark.

NOTE— The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5. PACKING

5.1 Unless otherwise specified in the contract or order the following procedure shall be followed:

One outer fly shall be folded in clean and dry condition and tied with one of the ropes of the fly to form a compact bale of cylindrical shape (as far as possible). The bale shall be completely wrapped with a single layer of heavy cee cloth (*see* IS:3751-1966*) or double layer of hessian cloth of the best trade quality with a prior approval of the purchaser. The bales shall be properly and securely stitched with double 3-ply jute twine of 18 kg minimum breaking strength with not less than 5 stitches/10 cm taking care not to pierce the basic fabric of the tent during stitching. Sufficient hessian/sacking/backing cloth shall be pulled out at each corner to form ' ears ' of about 15 cm in length. .

5.2 Each bale shall be marked with its serial number and gross mass in kg in addition to the information marked on the fly.

*Specification for heavy cee cloth.

Indian Standard
SPECIFICATION FOR
50-kg TENT
PART III INNER FLY

1. SCOPE

1.1 This standard (Part III) covers the inner fly for 50-kg tents.

2. GENERAL REQUIREMENTS

2.1 In respect of general requirements the inner fly shall conform to IS : 7609-1975* as well as Part I† of this standard.

3. SPECIFIC REQUIREMENTS

3.1 The specific requirements including dimensions of inner fly are given in Fig. 1 and 2.

3.2 The manufacturing details of inner fly are given in 3.2.1 to 3.2.10 (*see also* Fig. 3 to 6).

3.2.1 Construction — The fly shall consist of two quilted folds of *DOSUTI* for the roof, the outer being blue and the inner fold scoured.

3.2.2 Ventilators — The inner fly shall have two ventilators, one on each left side looking from the outside from each end. The distance of these ventilators shall be 61 cm from the ends. Each ventilator shall be covered with mosquito netting. The border work of the ventilator shall be of 40 mm tape. The horizontal and vertical cross bars shall be of 25 mm tape. Both edges of each tape shall be securely machine sewn to the netting throughout. The edge of the netting and the ends of each cross tape shall be taken under the outside sewing of the border work.

3.2.3 Ridge — A strip of 75 mm cotton tape *NEWAR* shall be inserted between the two folds of *DOSUTI* connecting the ridge caps. The edges of tape as well as the centre shall be quilted to the two folds of the *DOSUTI* and the tape shall extend well beneath the ridge caps. A length of 13 mm cotton cord shall be laid in the centre on the underside of the

*General requirements for tents.

†Specification for 50-kg tent : Part I General.

IS : 10321 (Part III) - 1982

ridge, from one ridge cap to the other. Each end of the line shall be spliced to form a loop between the caps. A ridge bag measuring 96×18 cm in depth shall be attached to the tape, cotton cord and both folds of *DOSUTI* in the middle of the ridge by means of cross stitching with cord cotton 6 mm. The ridge bag shall be made from one fold of scoured *DOSUTI* with the open ends bound round the edges with 50 mm tape in positions. This bag is for the support of the ridge portion between the standing poles.

3.2.4 Strengthening Tapes

3.2.4.1 One strip of 50 mm cotton tape *NEWAR* shall be laid between the folds in the centre of the fly, commencing from the dee tab at the bottom of the one wall straight over the ridge to the tab at the bottom of the opposite wall. Two additional 50 mm width cross cotton tape *NEWAR* shall be laid between the folds running from the corner tabs to the caps on each half portion of the roof.

3.2.4.2 Both edges of each tape shall be quilted to the folds of *DOSUTI* to retain it in position.

3.2.5 Beading — A strip of 100 mm cotton tape *NEWAR* shall be laid along each end of the roof of the fly, commencing at the corner tab of one side and continuing over the ridge to the corner tab on the opposite side. These tapes shall be folded over to the extent of 25 mm cotton rope forming the beading. A 50 mm tape shall be similarly folded over to enclose the 25 mm cotton rope laid along the top of each wall.

3.2.6 Strengthening Pieces — The corners of the fly shall be strengthened by a triangular piece 15×15 cm of canvas/duck cotton undyed. Each piece shall be laid and sewn at its edges between the folds of *DOSUTI* at the corner. The line cotton 6 mm undyed which secures the corner tab shall pass through the strengthening pieces.

3.2.7 Bivouac Supporting Loops

3.2.7.1 The fly shall have 12 circular tabs with loops, 6 tying tapes and 6 pockets sewn on the inside of the roof to the strengthening tapes. 6 extra loops shall be fitted under the edges of the side and corner rope tabs on the inside of the fly, as shown in Fig. 3 and 6.

3.2.7.2 The tabs shall be 5 cm in diameter constructed with 3 folds of canvas/duck cotton undyed and shall be covered by a layer of scoured *DOSUTI*. Each tab shall be punched through with 2 holes, each 6 mm in diameter spaced about 1.5 cm from the centre. These holes shall be oversewn with 8 button-hole stitches.

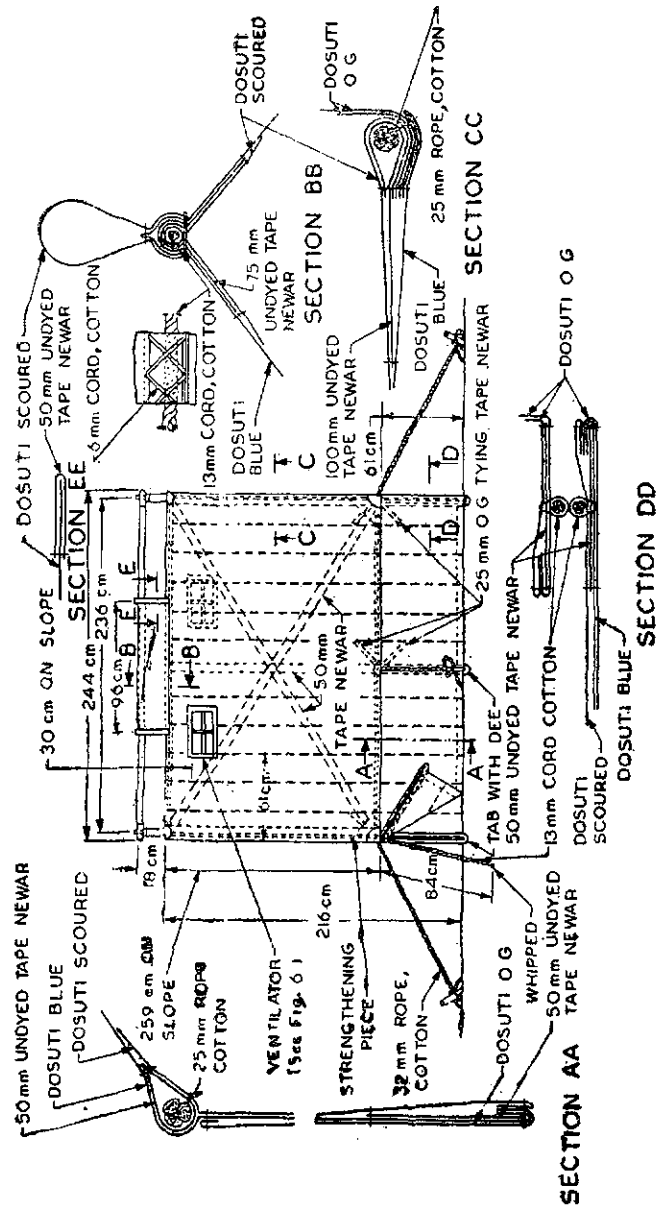
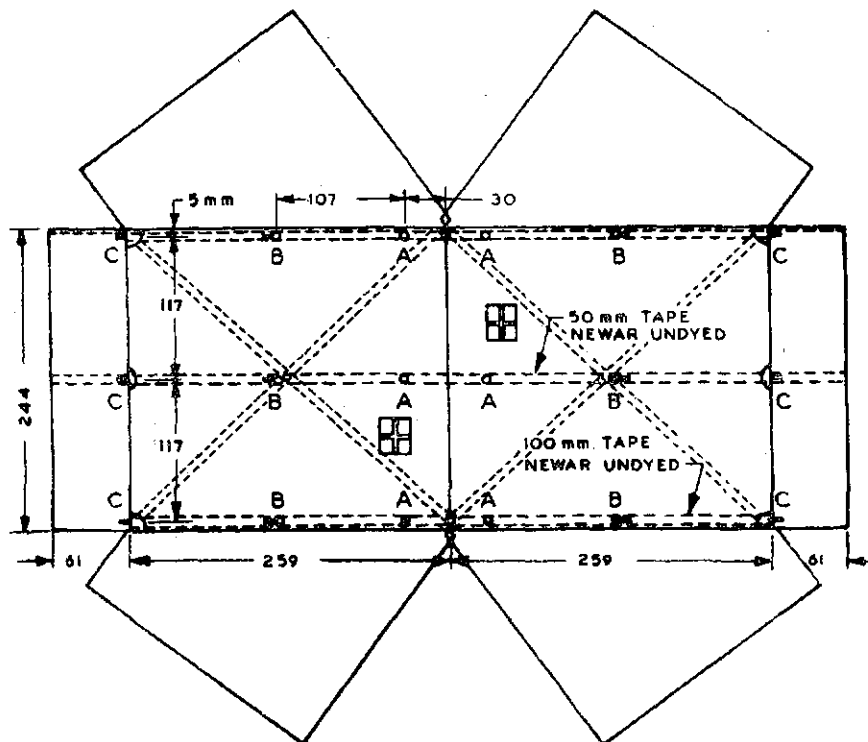


FIG. 1 INNER FLY (SIDE VIEW)



All dimensions in millimetres.

FIG. 2 INNER FLY-IN LAID OUT POSITION (INSIDE VIEW)

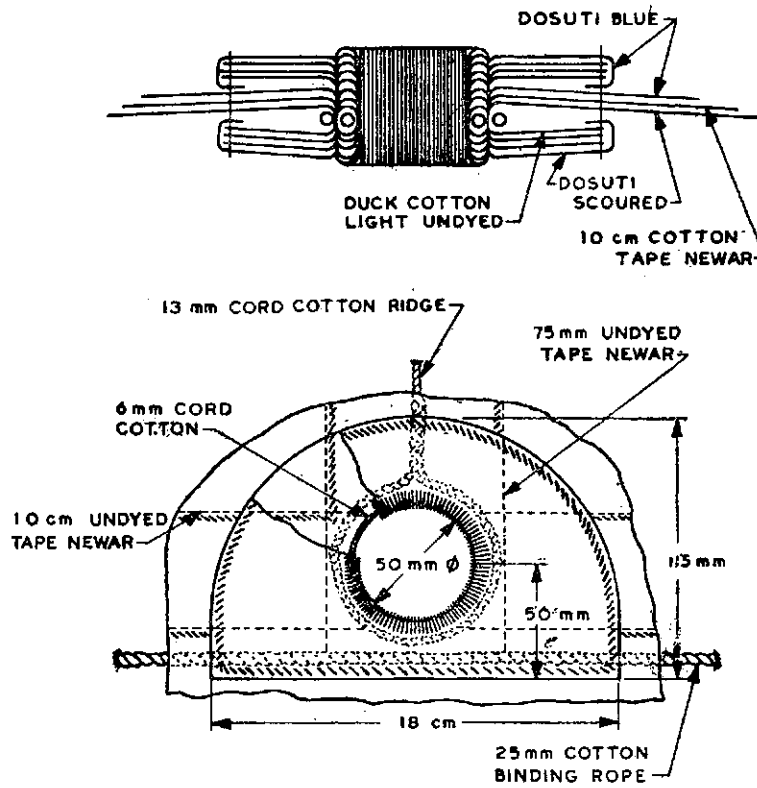


FIG. 3 DETAILS OF END CAP FOR INNER FLY

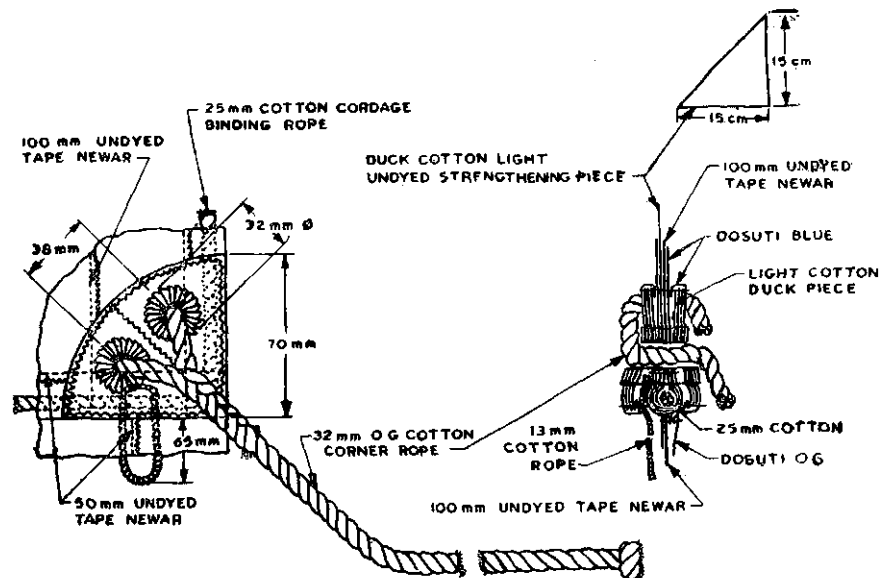


FIG. 4 DETAILS OF CORNER TAB FOR INNER FLY

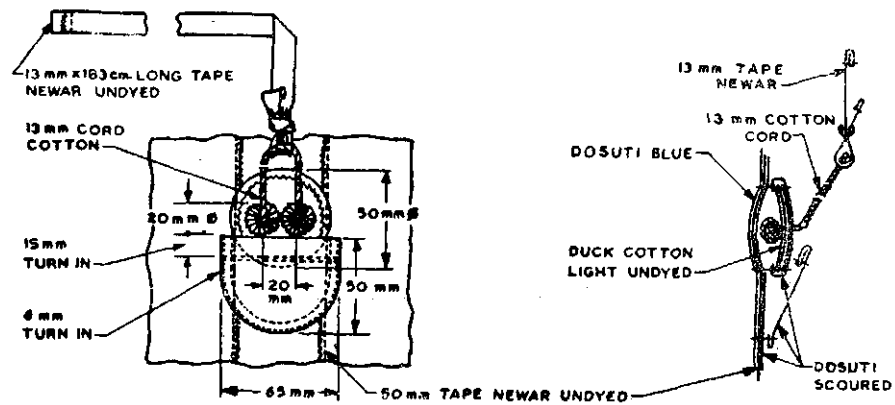


FIG. 5 DETAILS OF TAPE LOOP AND POCKET
(FOR BIVOUAC INFANTRY)

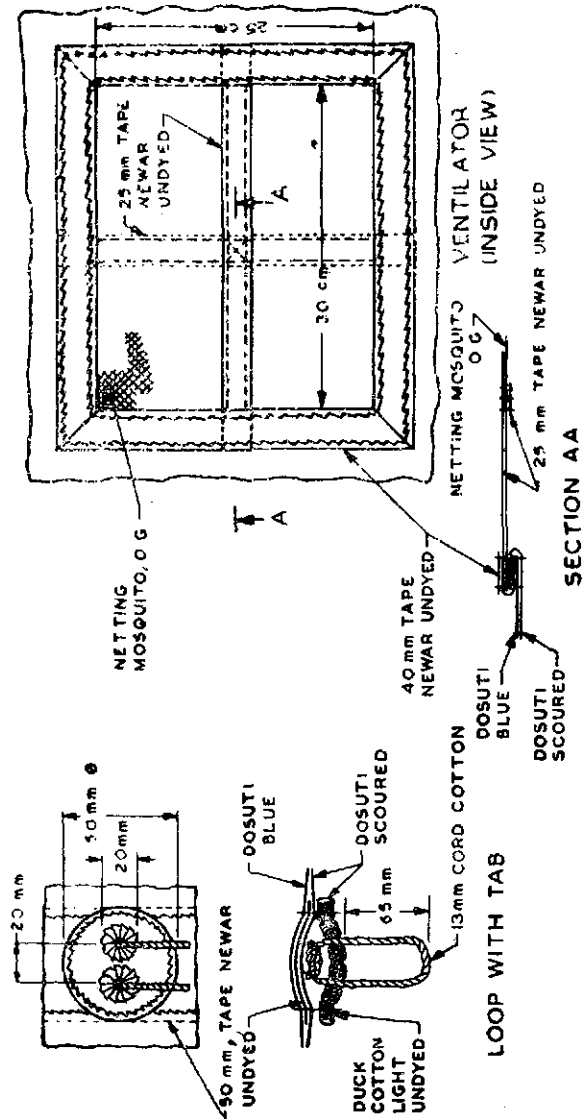


FIG. 6 DETAILS OF TAB AND VENTILATOR FOR INNER FLY

IS : 10321 (Part III) - 1982

3.2.7.3 The loops of 13 mm cotton cord shall be fitted to each tab and shall be 6.3 cm in length measured on the double. The loop shall be fastened with a *MOCHI* foot loop knot or a single sheet bend on the inside of the tab. The tabs shall be secured to the fly by a row of stitching with 6 mm cotton line around the edge centre. The tying tapes shall be of 13 mm cotton tape and shall be 1.83 mm in length. These shall be secured to the upper row of loops by a knot.

3.2.7.4 The pocket shall be made of a single piece of scoured *DOSUTI* measuring 6.2 cm in width \times 5 cm in depth. The raw edges of the material forming the pockets shall have a turn in of 13 mm. The shaped piece of *DOSUTI* shall be securely stitched to the fly with double thread, cotton.

3.2.7.5 Those loops and tapes are provided for the attachment of the bivouac nets and the pockets to accommodate the tapes when not in use.

3.2.8 Walls

3.2.8.1 The inner fold of the walls shall be of scoured *DOSUTI* and the middle fold of blue, and shall be in exact continuation of and in one piece with the fly. The outer fold shall be of olive green *DOSUTI*. A length of 13 mm cotton cord is attached to the scoured *DOSUTI* side secured at intervals of 7.6 cm with 6 mm cotton cord, forming a series of lacing loops. Both ends will be knotted and taken under the corner tab and dee tab. Along the bottom edge of each wall between the inner and middle folds shall be laid a length of 5 cm wide tape *NEWAR*. Three mild steel (2.22×1.90 cm) dees secured by tabs shall be fitted to the bottom of each wall.

3.2.8.2 For tying up the walls six tapes *NEWAR* olive green 25 mm shall be provided, each 40.6 cm in length and shall be sewn at their centres under each side and corner tab 20.3 cm on the inside and 20.3 cm on the outside.

3.2.9 Curtains

3.2.9.1 There shall be two curtains, each consisting of two folds of olive green *DOSUTI* at each end of the inner fly broad enough to overlap at the centre by 7.6 cm and shall be securely sewn. At the bottom of each curtain there shall be three tabs each fitted with a dee similar in all respects to those on the walls and secured in the same manner. For lacing the curtains eight No. 28 Brass eyelets, equally spaced shall be inserted 3.8 cm from the inside edge of each inner curtain. The holes for the eyelets shall be punched out first with a small size punch and may then be enlarged to the size of the diameter of the shank with a 'Marline Spike'. A tolerance of ± 0.8 mm in diameter and ± 1 SWG in gauge will be permitted in eyelets when used in the curtains. The shanks of the

eyelets shall be well and evenly set over the washers and shall not be split or deformed. In the centre of the strengthening tapes, eight lacing loops shall be sewn to the inside in each outer curtain in positions corresponding to those of the eyelets in the inner curtain. The lacing loops shall be made from one piece of 13 mm in cotton line, each loop measuring approximately 24 cm. For tying back the curtains six tapes cotton olive green 25 mm each and 76 cm long shall be sewn at equal distances along the junction of the fly of the curtains. Each tape shall be secured at its centre so that there shall be a length of 38 cm of tape on the inside and 38 cm on the outside. Tapes shall have the loose ends turned in 0.6 cm and secured by three stitches. The curtains shall be secured to the fly by two rows of stitching. One inside and one outside. The vertical edge of each curtain shall be bound around with a strip of tape cotton olive green 30 mm and shall be securely sewn.

3.2.9.2 Each curtain shall be provided with three strengthening tapes *NEWAR* undyed 50 mm positioned and quilted as in the outer and inner flies and running from the top to the bottom of the curtain.

3.2.9.3 The outer edge of the curtain shall have a similar series of lacing loops as on the wall. A loose end, for lacing the curtain and wall together in one piece with the lacing loop shall be left at the top. This will be 84 cm in length and whipped at the end for distance of 2.5 cm. The loose end of the thread shall be stitched through the whipping to prevent it being pulled off.

3.2.10 Ropes — There shall be 2 side and 4 corner ropes to the inner fly. Each side and corner rope shall measure 2 m in length. The rope shall be of rope cotton 32 mm olive green rotproofed. One end of all side and corner ropes shall be securely spliced to the tabs while all loose ends are securely finished off with a 'Mathew Walker' knot. All knots shall be tight drawn up and neatly finished.

4. MARKING

4.1 Each inner fly shall be marked on its outside, in 25 mm letters, with the manufacturer's name/trade-mark, year of manufacture, for 50-kg tent and other such information as desired by the purchaser.

4.1.1 Each inner fly may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

IS : 10321 (Part III) - 1982

5. PACKING

5.1 Unless otherwise specified in the contract or order the following procedure shall be followed:

Each inner fly shall be folded in clean and dry condition and tied with one of the ropes of the fly to form a compact bale of cylindrical shape as far as possible. The bale shall be completely wrapped with a single layer of heavy cee cloth (*see* IS:3751-1966*) or double layer of hessian cloth of the best trade quality with a prior approval of the Inspector. The bales shall be properly and securely stitched with double 3-ply jute twine of 18 kg minimum breaking strength with not less than 5 stitches per 10 cm taking care not to pierce the basic fabric of the tent during stitching. Sufficient hessian sacking cloth shall be pulled out at each corner to form 'ears' of about 15 cm in length.

5.2 Each bale shall be marked with its serial number and gross mass (kg) in addition to the information marked on the fly.

APPENDIX A

(*Clause 0.4*)

RECOMMENDED SI UNITS FOR TEXTILES

<i>SI No.</i>	<i>Characteristic</i>	<i>SI Unit</i>		<i>Application</i>
		Unit(s)	Abbreviation(s)	
(1)	(2)	(3)	(4)	(5)
1.	Length	Millimetre	mm	Fibres Samples, test specimens (as appropriate) Yarns, ropes, cordage, fab- rics
		Millimetre, centimetre	mm, cm	
		Metre	m	

*Specification for heavy cee cloth.

IS : 10321 (Part III) - 1982

Sl No.	Characteristic	SI Unit		Application
		Unit(s)	Abbreviation(s)	
(1)	(2)	(3)	(4)	(5)
2.	Width	Millimetre	mm	Narrow fabrics
		Centimetre	cm	Other fabrics
		Millimetre, centimetre	mm, cm	Samples, test specimens (as appropriate)
		Centimetre, metre	cm, m	Carpets, druggets, <i>DURRIES</i> (as appropriate)
3.	Thickness	Micrometre (micron)	μ m	Delicate fabrics
		Millimetre	mm	Other fabrics, carpets, felts
4.	Linear density	Tex	tex	Yarns
		Millitex	mtex	Fibres
		Decitex	dtex	Filaments, fila- ment yarns
		Kilotex	ktex	Slivers, ropes, cordage
5.	Diameter	Micrometre (micron)	μ m	Fibres
		Millimetre	mm	Yarns, ropes, cordage
6.	Circumference	Millimetre	mm	Ropes, cordage
7.	Threads in fabric:			Woven fabrics (as appro- priate)
a)	Lengthwise	Number per centimetre	ends/cm	
		Number per decimetre	ends/dm	
b)	Widthwise	Number per centimetre	picks/cm	
		Number per decimetre	picks/dm	

IS : 10321 (Part III) - 1982

Sl No.	Characteristic	SI Unit		Application
		Unit(s)	Abbreviation(s)	
(1)	(2)	(3)	(4)	(5)
8.	Warp threads in loom	Number per centimetre	ends/cm	Reeds
9.	Stitches in knitted fabric:			Knitted fabrics (as appropriate)
	a) Lengthwise	Courses per centimetre Courses per decimetre	courses/cm courses/dm	
	b) Widthwise	Wales per centimetre Wales per decimetre	wales/cm wales/dm	
10.	Stitch length	Millimetre	mm	Knitted fabrics, made-up items
11.	Mass per unit area	Grams per square metre	g/m ²	Fabrics
12.	Mass per unit length	Grams per metre	g/m	Fabrics
13.	Twist	Turns per centimetre Turns per metre	turns/cm turns/m	Yarns, ropes, cordage (as appropriate)
14.	Test or gauge length	Millimetre, centimetre	mm, cm	Fibre, yarn and fabric specimens (as appropriate)
15.	Breaking load	Millinewton Newton	mN N	Fibres, delicate yarns (individual or skeins) Strong yarns (individual or skeins), ropes, cordage, fabrics

IS : 10321 (Part III) - 1982

Sl No.	Characteristic	SI Unit		Application
		Unit(s)	Abbreviation(s)	
(1)	(2)	(3)	(4)	(5)
16.	Breaking length	Kilometre	km	Yarns
17.	Tenacity	Millinewton per tex	mN/tex	Fibres, yarns (individual or skeins)
18.	Twist factor or twist multiplier	Turns per centimetre \times square root of tex Turns per metre \times square root of tex	$\left. \begin{array}{l} \text{turns/cm} \\ \times \sqrt{\text{tex}} \\ \text{turns/m} \\ \times \sqrt{\text{tex}} \end{array} \right\}$	Yarns (as appropriate)
19.	Bursting strength	Newton per square centimetre	N/cm ²	Fabrics
20.	Tear strength	Millinewton, newton	mN, N	Fabrics (as appropriate)
21.	Pile height	Millimetre	mm	Carpets
22.	Pile density	Mass of pile yarn in grams per square metre per millimetre pile height	g/m ² /mm pile height	Pile carpets
23.	Elastic modulus	Millinewton per tex per unit deformation	mN/tex/unit deformation	Fibres, yarns, strands

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	$1 \text{ N} = 1 \text{ kg.m/s}^2$
Energy	joule	J	$1 \text{ J} = 1 \text{ N.m}$
Power	watt	W	$1 \text{ W} = 1 \text{ J/s}$
Flux	weber	Wb	$1 \text{ Wb} = 1 \text{ V.s}$
Flux density	tesla	T	$1 \text{ T} = 1 \text{ Wb/m}^2$
Frequency	hertz	Hz	$1 \text{ Hz} = 1 \text{ c/s (s}^{-1}\text{)}$
Electric conductance	siemens	S	$1 \text{ S} = 1 \text{ A/V}$
Electromotive force	volt	V	$1 \text{ V} = 1 \text{ W/A}$
Pressure, stress	pascal	Pa	$1 \text{ Pa} = 1 \text{ N/m}^2$

PUBLICATIONS OF INDIAN STANDARDS INSTITUTION

INDIAN STANDARDS

Over 10 000 Indian Standards covering various subjects have been issued so far. Of these, the standards belonging to the Textile Group fall under the following categories:

Aeronautical textiles	Rayon fabrics, handloom
Chemical test methods	Ropes and Cordages
Colour fastness of textile materials	Sampling of textiles, methods for
Cotton fabrics — handloom, khadi, and mill-made	Silk fabrics — handloom and Khadi
Dyestuffs	Sizing and finishing materials
Grading of fibres and yarns	Spinning machinery components
Grading of raw silk	Terminology
Hosiery	Textile floor coverings
Jute — bags and fabrics	Textile materials for fishing
Jute mill accessories	Textile mill accessories (other than jute mills)
Narrow fabrics	Twines
National flag of India	Weaving machinery components
Nylon fabrics	Wool fabrics — handloom, khadi, and mill-made
Packaging codes	Yarn and similar structures
Physical test methods	Unclassified
Rayon fabrics	

INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones : 26 60 21, 27 01 31

Telegrams : Manaksanstha

Regional Offices:

		Telephone
Western : Novelty Chambers, Grant Road	BOMBAY 400007	89 65 28
Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola	CALCUTTA 700054	36 23 30
Southern : C.I.T. Campus	MADRAS 600113	41 24 42
Northern : B69, Phase VII	S.A.S. NAGAR (MOHALI) 160051	8 78 26

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 91
'F' Block, Unity Bldg, Narasimharaja Square	BANGALORE 560002	22 48 05
Gangotri Complex, Bhadbhada Road, T.T. Nagar	BHOPAL 462003	6 27 16
22E Kalpana Area	BHUBANESHWAR 751014	5 36 27
5-8-56C L. N. Gupta Marg	HYDERABAD 500001	22 10 83
R 14 Yudhister Marg, C Scheme	JAIPUR 302005	6 98 32
117/418 B Sarvodaya Nagar	KANPUR 208005	4 72 92
Patliputra Industrial Estate	PATNA 800013	6 28 08
Hantex Bldg (2nd Floor), Rly Station Road	TRIVANDRUM 695001	32 27

Printed at Arcee Press, New Delhi, India